

LISTING OF THE CLAIMS:

1. (Currently amended): A method for the segmentation of an audio stream into semantic or syntactic units wherein the audio stream is provided in a digitized format, comprising the steps of:

determining a fundamental frequency for the digitized audio stream;

detecting changes of the fundamental frequency in the audio stream, wherein detecting the changes of the fundamental frequency includes providing a threshold value for estimates of the fundamental frequency's voicedness and determining whether the voicedness of the fundamental frequency estimates are higher or lower than the threshold value, and wherein the voicedness of the fundamental frequency estimates lower than the threshold value equals no voice, and wherein the voicedness of the fundamental frequency estimates higher than the threshold value equals voice;

determining candidate boundaries for the semantic or syntactic units depending on the detected changes of the fundamental frequency;

extracting a plurality of prosodic features in an environment of the audio stream where the voicedness of the fundamental frequency estimates are lower than the threshold value, wherein the environment is a period of time between 500 and 4000 milliseconds preceding and following the candidate boundaries;

~~extracting and combining [[a]] the plurality of prosodic features in a neighborhood of the candidate boundaries; and~~

determining boundaries for the semantic or syntactic units depending only on the combined plurality of prosodic features.

2. (Canceled)

3. (Previously Presented): The method according to claim 1, wherein defining an index function for the fundamental frequency having a value = 0 if the voicedness of the fundamental frequency is lower than the threshold value and having a value = 1 if the voicedness of the fundamental frequency is higher than the threshold value.

4. (Previously Presented): The method according to claim 3, wherein extracting the plurality of prosodic features is in an environment of the audio stream where the value of the index function is $= 0$.

5. (Canceled)

6. (Previously Presented): The method according to claim 1, wherein at least one prosodic feature is represented by the fundamental frequency.

7. (Canceled)

8. (Original): The method according to claim 1, further comprising first detecting speech and non-speech segments in the digitized audio stream and performing the steps of claim 1 thereafter only for detected speech segments.

9. (Original): The method according to claim 8, wherein the detecting of speech and non-speech segments comprises utilizing the signal energy or signal energy changes, respectively, in the audio stream.

10. (Original): The method according to claim 1, further comprising the step of performing a prosodic feature classification based on a predetermined classification tree.

11. (Currently amended): An article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for causing segmentation of an audio stream into semantic or syntactic units, wherein the audio stream is provided in a digitized format, the computer readable program code means in the article of manufacture comprising computer readable program code means for causing a computer to effect:

determining a fundamental frequency for the digitized audio stream;

detecting changes of the fundamental frequency in the audio stream, wherein detecting the changes of the fundamental frequency includes providing a threshold value

for estimates of the fundamental frequency's voicedness and determining whether the voicedness of the fundamental frequency estimates are higher or lower than the threshold value, and wherein the voicedness of the fundamental frequency estimates lower than the threshold value equals no voice, and wherein the voicedness of the fundamental frequency estimates higher than the threshold value equals voice;

determining candidate boundaries for the semantic or syntactic units depending on the detected changes of the fundamental frequency;

extracting a plurality of prosodic features in an environment of the audio stream where the voicedness of the fundamental frequency estimates are lower than the threshold value, wherein the environment is a period of time between 500 and 4000 milliseconds preceding and following the candidate boundaries;

~~extracting and combining [[a]] the plurality of prosodic features in a neighborhood of the candidate boundaries; and~~

determining boundaries for the semantic or syntactic units depending only on the combined plurality of prosodic features.

12. (Currently amended): A digital audio processing system for segmentation of a digitized audio stream into semantic or syntactic units comprising:

means for determining a fundamental frequency for the digitized audio stream;

means for detecting changes of the fundamental frequency in the audio stream, wherein detecting the changes of the fundamental frequency includes providing a threshold value for estimates of the fundamental frequency's voicedness and determining whether the voicedness of the fundamental frequency estimates are higher or lower than the threshold value, and wherein the voicedness of the fundamental frequency estimates lower than the threshold value equals no voice, and wherein the voicedness of the fundamental frequency estimates higher than the threshold value equals voice;

means for determining candidate boundaries for the semantic or syntactic units depending on the detected changes of the fundamental frequency;

means for extracting a plurality of prosodic features in an environment of the audio stream where the voicedness of the fundamental frequency estimates are lower than

the threshold value, wherein the environment is a period of time between 500 and 4000 milliseconds preceding and following the candidate boundaries;

~~means for extracting and combining [[a]] the plurality of prosodic features in a neighborhood of the candidate boundaries; and~~

means for determining boundaries for the semantic or syntactic units depending only on the combined plurality of prosodic features.

13. (Original): An audio processing system according to claim 12, further comprising means for generating an index function for the voicedness of the fundamental frequency having a value = 0 if the voicedness of the fundamental frequency is lower than a predetermined threshold value and having a value = 1 if the voicedness fundamental frequency is higher than the threshold value.

14. (Original): Audio processing system according to claim 12 or 13, further comprising means for detecting speech and non-speech segments in the digitized audio stream, particularly for detecting and analyzing the signal energy or signal energy changes, respectively, in the audio stream.